MATH3415 Calculus III，Spring 2018

Catalog description: Continuation of MATH 2414. Vector operations in two and three dimensions, lines, planes; vector functions, space curves, partial derivatives, curvature; multivariate calculus, optimization, Lagrange multipliers; multiple integrals; vector fields, theorems of Green, Gauss and Stockes. **Prerequisite:** MATH 2414 (Calculus II)

Instructor, Office, Phone, e-mail, and Website:
Dr. Rongdong Wang, Professor, Rhode Hall 222, 593-3193, kfrw000@tamuk.edu,

Office Hours:
M-F: 9:00 am – 10:00 am

Required Textbook:
Calculus Early Transcendentals 8E, James Stewart, Brooks/Cole

Student learning objectives:
Through examination and assignments, the student will demonstrate his/her ability to:
Calculate and use dot product and cross product; form equations of lines, planes and spheres in 3-dimensional space; evaluate the derivative and integral and calculate arc-length of vector valued functions; match 3-dim plots and contour diagrams of functions of two variables; compute and apply partial derivatives of functions of several variables; form the tangent plane to the graph of a function of two variables at a point; use the chain rule to compute partial derivatives of functions of several variables; compute and use directional derivatives and the gradient of a function; determine extreme values of functions of several variables with and without constraints; evaluate double and triple integrals over general regions; change the order of integration and change variables to evaluate multiple integrals; evaluate line integrals and state and apply Green's theorem; state and apply Stokes' theorem, state and apply the divergence theorem.

Topics: Chapter	Topic
12.1	Three-dimensional coordinate system.
12.2-12.4	Vectors. The dot product. The cross product.
12.5	Equations of lines and planes.
12.6	Cylinders and quadratic surfaces.
13.1	Vector functions.
13.2	Derivatives and integrals of vector functions.
13.3	Arc length and curvature.
13.4	Motion in space. Velocity and acceleration.
14.1	Functions of several variables.
14.2	Limits and continuity.
14.3	Partial derivatives.
14.4	Tangent planes and linear approximation.
14.5	The chain rule.
14.6	Directional derivatives and gradient vector.
14. 7	Maximum and minimum
14.8	Lagrange multipliers
15.1	Double integrals over rectangles.

Grading:
Grades will be based on three tests, recitation, and the final. The final will be comprehensive. One test may be dropped. Making up tests are not available. Ratios are: tests 50%, recitation 25%, and final 25%. The following scales will be used.

Overall Average	Course Grade
90 – 100	A
80 – 89	B
70 – 79	C
60 – 69	D
0 – 59	F

Policies for Tests, Cell phones:
TI 89, TI 92, or similar CAS calculators are not allowed on tests. Cell phones should be turning off in classrooms.

Attendance:
Students will be expected to attend class regularly, to complete assignments and to take examinations on time. The College of Arts and Sciences attendance policy will be followed.

ADA Statement:
Students with disabilities, including learning disabilities, who wish to request accommodations in this class should notify the Services for Students with Disabilities Office early in the semester so that the appropriate arrangements may be made.
In accordance with federal laws, a student requesting special accommodations must provide documentation of their disability to the SSD coordinator.

Academic Misconduct: (See Student Handbook)
You are expected to practice academic honestly in every aspect of this course and all other courses. Make sure you are familiar with your Student Handbook, especially the section on academic misconduct. Students who engage in academic misconduct are subject to university disciplinary procedures.

Forms of academic dishonesty:
  1. Cheating: deception in which a student misrepresents that he/she has mastered information on an academic exercise that he/she has not mastered; giving or receiving aid unauthorized by the instructor on assignments or examinations.
  2. Academic misconduct: tampering with grades or taking part in obtaining or distributing any part of a scheduled test.
  3. Fabrication: use of invented information or falsified research.

Nonacademic Misconduct: (See Student Handbook)
The university respects the right of instructors to teach and students to learn. Maintenance of these rights requires campus conditions that do not impede their exercise.
Campus behavior that interferes with either
  1) The instructor's ability to conduct the class
  2) The ability of other students to profit from the instructional program, or
  3) Campus behavior that interferes with the rights of others will not be tolerated.
An individual engaging in such disruptive behavior may be subject to disciplinary action.

Sexual Misconduct: (See Student Handbook)

Sexual harassment of students and employers at Texas A&M University-Kingsville is unacceptable and will not be tolerated. Any member of the university community violating this policy will be subject to disciplinary action.

Six-drop policy:
"If you are a freshman and you are enrolled in college for the first time Fall 2007 or later following graduation from high school, you are affected by this law. Senate Bill 1231 limits the number of courses that you may drop during your undergraduate career to six drops. If you need additional information on Senate Bill 1231 and how it affects you, please contact the Registrar's Office in College Hall, Room 105."